

**CLAIMS**

We claim:

- 5 1. A detection method of lift guide rail perpendicularity, characterized in that it includes the following steps:
  - (1) determining several monitoring points on the side or top working surface of the lift to be detected;
  - (2) sequentially measuring the position coordinates of each monitoring point in  
10 the length direction of the guide rail and the distances between adjacent two monitoring points;
  - (3) sequentially measuring the included angles between the connecting lines of adjacent two points of each monitoring point and plumb line;
  - (4) calculating mathematically, analyzing and arranging the measured data such  
15 as position coordinates of each monitoring point in the length direction of the guide rail, included angles between the connecting lines of adjacent two points of each monitoring point and plumb line and the distances between adjacent two monitoring points and so on, obtaining error data of lift guide rail perpendicularity detected, plotting curve graphic chart of the perpendicularity.
- 20 2. A detector of lift guide rail perpendicularity for implementing said detection method according to claim 1, characterized in that it includes an instrument frame, at least two detector heads which can contact with working surface of lift guide rail, a displacement sensor used to measure the displacement distance of the detector  
25 heads along the detected guide rail, an inclination sensor used to measure included angles between the connecting lines of two detector heads and plumb line, the microcomputer system used to process the measured data and a supply unit are installed on the said instrument frame; output terminals of the said displacement and inclination sensors connect with input terminals of the microcomputer system.

3. A detector of lift guide rail perpendicularity according to claim 2, characterized in that the said detector heads which can contact with working surface of lift guide rail are roller type, excircle surfaces of said rollers contact with working surface of lift guide rail.

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4. A detector of lift guide rail perpendicularity according to claim 2, characterized in that the said detector heads which can contact with working surface of lift guide rail are slide block type, sliding surfaces of said slide blocks contact with working surface of lift guide rail.

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5. A detector of lift guide rail perpendicularity according to claim 2, characterized in that the tightening unit is installed on said detector heads.

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6. A detector of lift guide rail perpendicularity according to claim 2, characterized in that said tightening unit is spring type or magnetic power type.

7. A detector of lift guide rail perpendicularity according to claim 2, characterized in that said displacement sensor may be rotary encoder.

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8. A detector of lift guide rail perpendicularity according to claim 2, characterized in that said rotary encoder is connected with rollers of detector heads by the flexible coupling.

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9. A detector of lift guide rail perpendicularity according to claim 2, characterized in that said displacement sensor may be photoelectric sensor.

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10. A detector of lift guide rail perpendicularity according to claim 2, characterized in that said photoelectric sensor will not contact with working surface of guide rail to be detected and keep gap above 1mm with working surface of guide rail to be detected.